UNITED STATES PATENT AND TRADEMARK OFFICE

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER
ABDI, AMARA

ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
01/03/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _15 October 2007_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-32_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-32_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _15 December 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _07/31/2007_.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Applicant's response to the last office action, filed October 15, 2007 has been entered and made of record.

2.   In view of the Applicant amendments, the objections to claims 2-3, 6-7, 10-14, 19, 23, and 26-30 are expressly withdrawn.

3.   Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-14, 16-30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US PGPUB 2004/0264780) in view of Okazaki et al. (US 6,873,713), and Ralph et al. (Growing Gaussian Mixture Models for Pose Invariant Face Recognition, IEEE, 2000, PP 1088-1091).

(1) Regarding claims 1 and 17:

Zhang et al. disclose a method and system (paragraph [0004], line1) for automatically recognizing objects in a digital image, comprising:

accessing digital image data containing an object of interest therein (element 192 in Fig. 1, paragraph [0037], line 1-5);

detecting an object of interest in said digital image data (element 206 in Fig. 2, paragraph [0004], line 4-5; and paragraph [0045], line 1-3); and

applying each extracted feature to a previously-determined additive probability model to determine the likelihood that the object of interest belongs to an existing class of objects (element 202 in Fig. 2, paragraph [0021], line 6-10, and paragraph [0041], line 7-15).

Zhang et al. do not explicitly mention the following items:

1) normalizing the object of interest to generate a normalized object representations, and extracting a plurality of features from the normalized object representation; and

2) wherein the additive probability model models the object using a class center and residual components between the objects and the class center.

(A) Concerning item 1):

Okazaki et al., in analogous environment, teaches an image processing apparatus and method for extracting feature of object, where normalizing the object of interest to generate a normalized object representation (Fig 6-7, column 29-47); and extracting the plurality of features from the normalized object representation (column 2, line 27-29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Okazaki et al., where normalizing and extracting a feature points from the object images, in the system of Zhang et al. in order to have a greatly improve verification performance, and minimizing the increase in

complicated computation and processing cost without largely changing a pattern verification process algorithm from a single direction can be improved (column 13, line 18-23).

(B) Concerning item 2):

Ralph et al., in analogous environment, teaches a Growing Gaussian Mixture Models for Pose Invariant Recognition, where the additive probability model (Gaussian Model) models the object using a class center (The class center is read as characterized human face or identity) and residual components between the objects and the class center (the residual components between the objects and the class center is read as the view or a pose) (Page 1088, Abstract, line 8-11).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Ralph et al., where using a Gaussian model, in the system of Zhang et al. in order to increase the robustness of the person identification system by adding face recognition (Page 1088, paragraph [2], line 7-9).

(2) Regarding claims 2 and 18:

Zhang et al. disclose all the subject matter as described in claims 1 and 17 above.

Zhang et al. do not explicitly mention the additive Gaussian model that decomposes an appearance of an object into components corresponding to class and view.

Ralph et al., in analogous environment, teaches a Growing Gaussian Mixture Models for Pose Invariant Recognition, where using a Gaussian model that

decomposes an appearance of an object into components corresponding to class (the class is read characterized human face or identity) and view (the view is read as a pose) (Page 1088, Abstract, line 8-11).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Ralph et al., where using a Gaussian model, in the system of Zhang et al. in order to increase the robustness of the person identification system by adding face recognition (Page 1088, paragraph [2], line 7-9).

(3) Regarding claims 3 and 19:

Zhang et al. further disclose the method and system (paragraph [0004], line1) comprising:

selecting an existing class for said object of interest based on said likelihood (paragraph [0021], line 7-8); and re-calculating an additive probability model for the selected class using a feature value of the object of interest (paragraph [0041], line 8-10), (the recalculating of the additive probability model is read as the same concept as the calculating of additive probability model).

(4) Regarding claims 4 and 20:

Zhang et al. further disclose the method and system (paragraph [0004], line1), where the object of interest is a face (paragraph [0004], line 4-7) and the method performs face recognition (paragraph [0017], line 1).

(5) Regarding claims 5 and 21:

Zhang et al. further disclose the method and system (paragraph [0004], line1), where the object of interest is a face (paragraph [0004], line 4-7), and the method

performs face verification (paragraph [0017], line 1) based on said likelihood (paragraph [0041], line 9-10).

(6) Regarding claims 6 and 22:

Zhang et al. further disclose the method and system (paragraph [0004], line1), where the object of interest is a face (paragraph [0004], line 4-7), and the step of detecting an object of interest detects facial features in the digital image data (paragraph [0043], line 1-4).

(7) Regarding claims 7 and 23:

Zhang et al. further disclose the method and system (paragraph [0004], line1), where the step of detecting an object of interest utilizes early rejection to determine that an image region does not correspond to a facial feature (paragraph [0021], line 16-18), (the use of marginal probability is read as the early rejection).

(8) Regarding claims 8 and 24:

Zhang et al. further disclose the method and system (paragraph [0004], line1), where the object of interest is a face (paragraph [0004], line 4-7) in a digital photo (paragraph [0042], line 3-4; and paragraph [0043], line 1-4).

(9) Regarding claims 9 and 25:

Zhang et al. further disclose the method and system (paragraph [0004], line1), comprising:

generating an additive probability model for each of a plurality of classes based on feature values for objects belonging to said classes (paragraph [0021], line 7-10).

(10) Regarding claims 10 and 26:

Zhang et al. further disclose the method and system (paragraph [0004], line1), where the step of generating an additive probability model for a particular class is repeated each time a detected object of interest is added to the corresponding class (paragraph [0021], line 7-10), (the repeating of an additive probability model is read as the concept as the additive probability applied in the first step).

(11) Regarding claims 11 and 27:

Zhang et al. further disclose the method and system (paragraph [0004], line1), where the step of generating an additive probability model clusters examples belonging to a single class (paragraph [0021], line 2-6) so as to generate multiple additive probability models for each class identity (paragraph [0021], line 9), (it is read that the probabilities are modeled for each class identity).

(12) Regarding claims 12 and 28:

Zhang et al. further disclose the method and system (paragraph [0004], line1), where the step of generating an additive probability model computes a posterior distribution for a feature value mean from at least one example feature value (paragraph [0083], line 4-14).

(13) Regarding claims 13 and 29:

Zhang et al. further disclose the method and system (paragraph [0004], line1), where the additive probability model models variance of said feature value mean (paragraph [0017], line 14-17), (the variance is read as the same concept as the estimate density).

(14) Regarding claims 14 and 30:

Zhang et al. further disclose the method and system (paragraph [0004], line1), where the variance of the feature value mean approaches zero as more examples are associated with the corresponding class (paragraph [0071], line 4-7), (the variance is read as the same concept as the estimate density).

(15) Regarding claims 16 and 32:

Zhang et al. further the method and system (paragraph [0004], line1), where the digital image data represents a digital photo (paragraph [0042], line 3-4).

6.   Claims 15 and 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al., Okazaki et al., and Ralph et al., as applied to claims 1 and 17 above, and further in view of Bradshaw (US PGPUB 2002/0122596).

Zhang et al., Okazaki et al., and Ralph et al. disclose all the subject matter as described in claims 1 and 17 above.

Zhang et al., Okazaki et al., and Ralph et al. do not explicitly mention the executing of a training stage to identify a set of independent features that discriminate between classes.

Bradshaw, in analogous environment, teaches hierarchical, probabilistic, localized, semantic image classifier, where executing a training stage to identify a set of independent features that discriminate between classes (paragraph [0106], line 1-2; and line 6-8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Bradshaw, where the features discriminate between classes, in the system of Zhang et al. in order to have the most cost effective and efficient image retrieval approach available (paragraph [0006], line 5-6)

Conclusion:

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

JINGGE WU
SUPERVISORY PATENT EXAMINER

Contact Information:

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amara Abdi whose telephone number is (571) 270-1670. The examiner can normally be reached on Monday through Friday 7:30 Am to 5:00 PM E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wu Jingge can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.   Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amara Abdi
12/21/2007